

IV.—*Victorian Graptolites—Part III.—From near  
Mount Wellington.*

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(With Plate VI.).

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The small collection of graptolites here dealt with was found by Mr. E. O. Thiele at the junction of the right and left branches of the Wellington River, about six miles west of Mount Wellington. The locality was described briefly by him in a paper on Lake Karng, recently read before the Field Naturalists' Club of Victoria,<sup>1</sup> and also in a paper in the present volume.<sup>2</sup> The country to the south-west and west of Mount Wellington is coloured Silurian [Upper Silurian] on the last issued map of the State, but the fossils here dealt with are of Upper Ordovician age. Graptolites of about the same horizon have been known for some years to occur at Mount Matlock, 35 miles to the north-west, and others have recently been found at the Thomson-Jordan junction, 20 miles west. The area, then, of Ordovician is apparently considerable, though it is all mapped as Silurian. The presence of *Monograptus*, however, in other beds near the Thomson-Jordan junction show that Silurian [Upper Silurian] rocks are present, so that McCoy's reference of certain beds at Mount Matlock to Silurian [Upper Silurian] on what appeared slender evidence may be quite correct.<sup>3</sup> Mr. Thiele's papers, above referred to, show that the Ordovician transgresses further east into the Upper Devonian (? Carboniferous) area shown on the map. There is evidently room for a good deal of careful mapping in this rugged and

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1 Victorian Naturalist 22, 1905, pp. 22-31.

2 A Palaeozoic Serpentine Conglomerate. Proc. Roy. Soc. Vic., 18, n.s. 1905, p. 1.

3 See Whitelaw, O.A.L. The Wood's Point Goldfield. Mem. Geol. Surv. Victoria, No. 3, 1905.

almost inaccessible district, and results of interest may be expected, especially as the presence of Heathcotician is asserted.

The recent publication by the Palaeontological Society of the fourth part of Miss Elles' and Miss Wood's Monograph of British Graptolites, which deals with the Diceranograptidae, renders it possible at last for useful comparisons of our Australian species to be made with those of Europe. The small size and complicated form of the thecae of this group, together with their frequent imperfect condition of preservation, owing to their delicate structure, and their habit of being embedded at all angles in the bedding plane, make their elucidation one of considerable difficulty. The older descriptions and figures were inadequate, but the revision of the authors mentioned makes easy much that was formerly unintelligible.

The specimens which Mr. Thiele has been kind enough to allow me to examine I have identified as follows:—

- Diplograptus thielei, n. sp.
- Climacograptus wellingtonensis, n. sp.
- Cl. bicornis, J. Hall.
- Cryptograptus tricornis, Carruthers.
- Lasiograptus, sp.
- Dicellograptus elegans, Carruthers.
- Diceranograptus nicholsoni, Hopkinson.
- Dicr. hians, n. sp.

These are clearly of Upper Ordovician age. The descriptions of the previously-named species have been drawn up from specimens in the present collection, no character being dealt with which cannot be seen in them.

### **Diplograptus thielei, n. sp. (Pl. VI., Fig. 1).**

Hydrosome rather broad, the edges gradually diverging from the sicular end. At about 8 or 10 mm. from the sicula, they become parallel, and so continue to the truncate extremity. Sicula nearly one mm. broad at its aperture and one and a half mm. long. Thecae about  $4\frac{1}{2}$  times as long as broad, overlapping  $\frac{2}{3}$  their length. Outer wall of the earlier thecae gently sigmoidally curved. In the later ones it is straight. The earlier thecae have spines about 0.5 mm. long; these decrease in size, and ultimately vanish towards the anti-sicular end.

Length of hydrosome, 15 mm.; breadth, 3 mm.; thecae, 13 in 1 cm., inclined at 40 deg.; apertural margin normal to length of thecae. Virgula distinct, free for 1.5 mm. Virgella lax, 1 or 2 mm. long. Apertural spines of earliest thecae 0.5 mm. An additional spine on the sicular aperture.

This species has a close resemblance to *D. carnei*, mihi, from New South Wales, but the hydrosome of the latter increases in width continuously. The presence of a free virgula in *D. thielei* is an additional feature of diagnostic value.

***Climacograptus wellingtonensis*, n. sp.**

(Pl. VI., Figs. 2, 3).

Hydrosome regularly tapering to an acute point. Length, 8-10 mm.; breadth, 0.8 to 1.0 mm. Large specimens may reach a length of 45 mm. and a width of 2 mm., not increasing in width for the last couple of centimeters. Virgula distinct, free for about 1 mm. In young specimens the free virgula may be longer. Virgella as long as the hydrosome. Thecae, 13 in. 10 mm.

The relative lengths of the free virgula and virgella are held to be of prime importance in distinguishing the species of this group, and the species so distinguished are stated by Lapworth to have different ranges in time. There are at the same time slight differences in the form of the hydrosomes. The present species approaches the silurian species *C. rectangularis* McCoy, more closely than any other.

***Climacograptus bicornis*, J. Hall.**

A single well-preserved example of this species is present, and is of normal form.

***Cryptograptus tricornis*, Carruthers. (Pl. VI., Fig. 4).**

Hydrosome of great tenuity, parallel sided, reaching a length of about 15 mm. and from 1 to 1.5 mm. in breadth. The thecae cannot be distinctly made out nor counted in any of the specimens, but their apertures are distinctly shown by a double series of circular marks, one on each side of the virgula,

which is fairly distinct. The virgula is free for about 6 mm. The three spines from which the species takes its name are well marked; in fact, they and the virgula are all that remain of many specimens. Carruthers pointed out the great variation in length in the Scotch examples, and the same curious mixture of different growth stages is found with us. None of the specimens before me show much detail. They are almost too nebulous to draw, and Lapworth says that it was only after the accumulation of much material that he was able to determine the characters which induced him to found the subgenus.<sup>1</sup>

### *Lasiograptus*, sp.

A small fragment 2.5 mm. long apparently belongs to this genus. Four or five thecae are present on each side. The lateral appendages are long and slender, and are connected by a single thread along their distal ends. It occurs on the same slab as about 30 examples of *Cryptograptus tricornis* and a couple of *Climacograptus wellingtonensis*.

### *Dicellograptus elegans*, Carruthers. (Pl. VI., Fig. 5).

Branches about 6 mm. long; at first almost parallel, then bending outwards and finally inwards, the shape of the polypary resembling a pair of engineer's callipers. Sicular short and broad, there being no evidence of a virgula or virgella in the only two examples before me. Lateral spines short, but distinct. Thecae apparently about 15 in. 1 cm., but not well enough preserved for accurate counting; their outer walls curved; the apertures turned laterally in deep excavations.

Miss Elles and Miss Wood<sup>2</sup> say that the virgella is always well developed. Its apparent absence in the specimen figured may well be due to imperfect preservation. The thecae in the British specimens are said to number from 8 to 10 in. 1 cm. My estimate of 15 is very doubtful, as only two or three can be seen. The extreme broadening of the distal ends of the branches shown in my figure is due to the blurring produced by weathering in the originals.

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<sup>1</sup> See Lapworth, Ann. Mag. Nat. H. ser. 5, vol. v., 1880, p. 171. The name of the subgenus is misprinted "*Cyrtograptus*."

<sup>2</sup> Loc. cit., p. 159.

**Dicranograptus nicholsoni**, Hopkinson.

(Pl. VI., Fig. 7).

Biserial part 6 mm. long, with 6 or 7 thecae on each side; increasing in breadth from 0.7 mm. at the proximal end to 1.5 mm. at the point of bifurcation. Uniserial branches straight; 7 cm. long (broken); width 1 mm.; axillary angle, 40 deg. Thecae 10 in. 1 cm., strongly curved, with laterally facing apertures opening into deep excavations which indent the branch for about a third of its width. Spines on the first two or three thecae of the uniserial portion.

The only difference noticeable from the species as described by Miss Elles and Miss Wood is that in the British examples the uniserial portion is of even width throughout, while in ours there is an increase. This is probably not of sufficient importance for a specific difference, and moreover I have but a single specimen.

**Dicranograptus hians**, n. sp. (Pl. VI., Fig. 6).

Biserial portion about 3 mm. in length and 1 mm. broad, with about three thecae on each side. Axillary angle, 90 deg., the uniserial branches slightly curving towards one another, their length being about 6 cm. and breadth 1 mm. Thecae with slightly curved ventral margins and horizontal apertures; 12 in. 1 cm. The thecae of the uniserial portion are spined, and there is a distinct virgella.

The species belongs to group 2 of Miss Elles' and Miss Wood's subdivision of the genus, but is quite unlike either of the contained species. The wide angle of divergence of the branches suggests the specific name.

## DESCRIPTION OF PLATE VI.

- 1.—*Diplograptus thielei*, n. sp. x 1.
- 2.—*Climacograptus wellingtonensis*, n. sp. (?); a larger specimen than usual. x 1.
- 3.—*Climacograptus wellingtonensis*, n. sp. x  $1\frac{1}{3}$ .
- 4.—*Cryptograptus tricornis*, Carruthers. x 1.
- 5.—*Dicellograptus elegans*, Carruthers. x 1.
- 6.—*Dicranograptus hians*, n. sp. x 1.
- 7.—*Dicranograptus nicholsoni*, Hopkinson. x 1.